S09 C45 - Ethical, moral & cultural issues

Section 09 - Legal moral ethical & cultural issues

Monday, October 2, 2023

Key terms

Moral

- Concerned with the principles of right and wrong behaviour

Cultural

- Relating to the ideas, customs, and social behaviour of a society

Artificial intelligence

- The theory and development of computer systems able to perform tasks normally requiring human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages.

Personal information

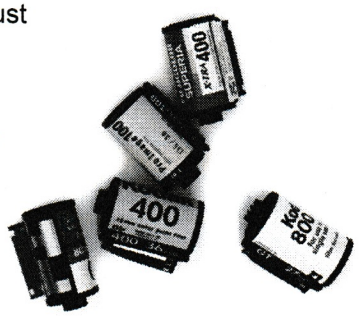
- Factual or subjective information, whether recorded or not, about an identifiable individual

Objectives

- Discuss the individual (moral), social (ethical) and cultural opportunities and risks of digital technology, including:
  - computers in the workforce
  - automated decision making
  - artificial intelligence
  - analysis of personal information
- Discuss the environmental effects of computers

Digital technology and the workforce

- Photography was once a big employer. In 1989 (when the Web began) Kodak employed 145,000 people
  - By 2015, after selling patents to escape bankruptcy, the remains of the company employed 8,000
  - In 2013, the smartphone photo platform Instagram, with just 13 fulltime staff, was sold to Facebook for $1bn
- What impact do you thin this had had on people?

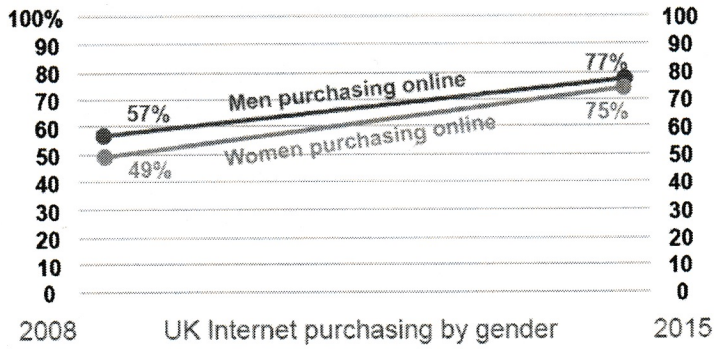


Digital content

- Music, video and publishing is open to anyone who uses smart technology
- Consumers pay less, or nothing
- Therefore musicians, film-makers and authors earn less, or nothing
  - Is this a Good Thing?

Buying online

- Three-quarters of British consumers purchase goods and services online



UK Internet purchasing by gender

Buying online

- The UK spends most (per head) online
  - What does this mean for shop workers?

Internet sales per shopper 2014-2015

	Sales per shopper 2014	Sales per shopper 2015	% increase
UK	£1,071	£1,174	9.6%
Germany	£890	£1,023	14.9%
France	£767	£847	10.4%
Spain	£458	£499	8.9%
Italy	£444	£485	9.2%
Netherlands	£613	£663	8.1%
U.S.	£1,043	£1,120	7.4%
Canada	£731	£780	6.8%

Pricing online

- You don't need inside knowledge to find the best deal, just a price comparison website
- There are comparison sites for comparing comparison sites
- Economists describe **competition** as working best when buyers and sellers all have **perfect information** about price, and also usefulness, quality and production methods

Pricing online

Task: what ethical questions might buyers have about production methods?

These might include:

The value of personal information

- In 2015, Facebook's total revenue was almost $18 billion - but it's free to use
- Most of the money comes from advertising
- Advertisers pay to target particular users – perhaps 16-18 year olds studying Computer Science and who speak English. YOU!
- Advertisers bid against each other in auctions for access to YOUR eyes and ears
  - What are advertisers paying for ?

Social platform assets

- Facebook's assets are its huge **userbase**, and the **data** it stores about each individual user – their likes, locations, age, and friends.
- A famous saying in advertising is

> "Half the money I spend on advertising is wasted; the trouble is I don't know which half."

But digital tracking can help reveal who clicked what before buying things online.

Activity

- Use the internet to answer Task 1 in S09 C45 - Worksheet

Save as: S09 C45 Worksheet (your name)
Save in: Section 9

e-Government

- Estonia has developed a sophisticated system of e-Government, from national to local levels
- 95% of tax declarations are filed electronically
- In the 2015 Parliamentary Elections, Internet voting accounted for 30.5 percent of the votes cast. Estonians worldwide cast their votes from 116 different countries
- A nationwide eHealth system integrates data to a create a common record for each patient

Task : e-Problems

- What problems need thinking about regarding Estonia's e-Government?

Activity

- Use the internet to answer Task 2 in S09 C45 - Worksheet

Save as: S09 C45 Worksheet (your name)
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Ethics and robotics

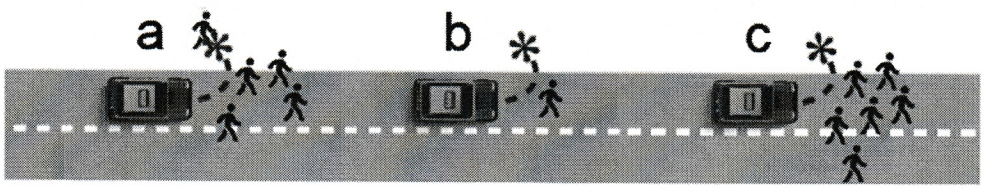
- Solving the technological problems of robotics can bring a focus on ethical questions
- Ethics is concerned with what is good for individuals and society and is also described as moral philosophy
- An example is how we program autonomous robots:
  - driverless vehicles, drones, robotic surgeons and security systems all raise questions

Asimov's Laws

- The author Isaac Asimov devised Three Laws for Robots:
  - A robot may not injure a human being or, through inaction, allow a human being to come to harm
  - A robot must obey the orders given it by human beings except where such orders would conflict with the First Law
  - A robot must protect its own existence as long as such protection does not conflict with the First or Second Laws

But it may not be simple…

- How should you program a driverless car?
  (a) The car can stay on course and kill several pedestrians, or swerve and kill one passer-by
  (b) The car can stay on course and kill one pedestrian, or swerve and kill its passenger
  (c) The car can stay on course and kill several pedestrians, or swerve and kill its passenger

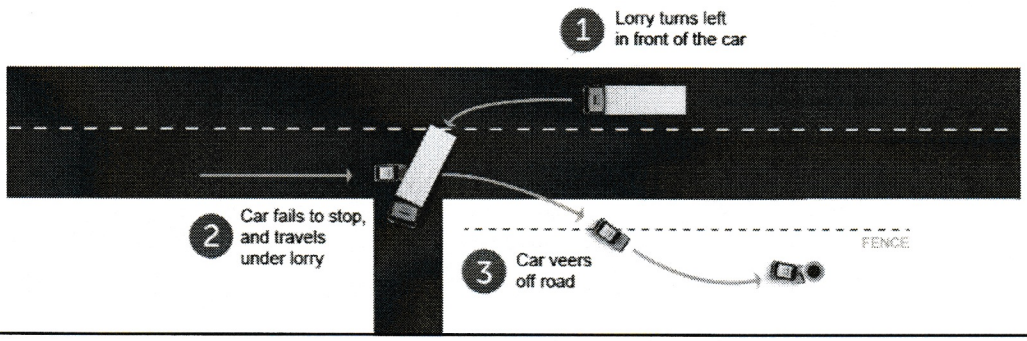


Ethical frameworks

- If a manufacturer offers different versions of its moral algorithm, and a buyer knowingly chose one of them, is the buyer to blame for the harmful consequences of the algorithm's decisions?

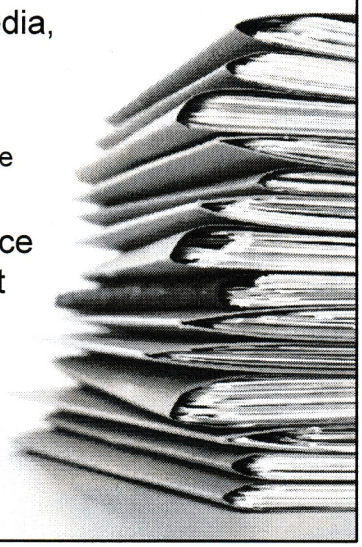
The Tesla fatal crash

- In May 2016, Joshua Brown of Ohio became the first known fatal casualty in a self-drive car crash
  - The Tesla Model S crashed into a truck that was turning left in front of it. The Tesla then ran off the road, hitting a fence and a telegraph pole before coming to a stop



Screening people

- Artificial intelligence algorithms can analyse social media, CVs, credit ratings, buying history, postcode data and more
  - Without automated screening these processes would have to be done manually
- Employers, universities, law enforcement and insurance companies all use algorithms and data to some extent



Artificial intelligence

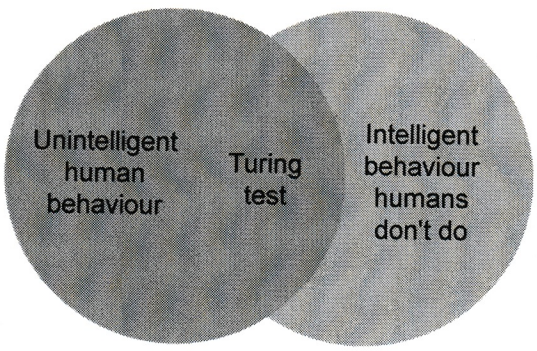
- Computers have outplayed humans at chess, can compute faster and more accurately (which is why they were built in the first place), and can drive cars and fly aircraft

Task

- What would it mean to say that a computer has intelligence?

But ...

- Not all humans behave intelligently; and not all intelligent behaviour is done by humans (like fast calculation)



Activity

- Discuss the questions in Task 3 in S09 C45 - Worksheet

Save as: S09 C45 Worksheet (your name)
Save in: Section 9

Environmental effects of digital technologies

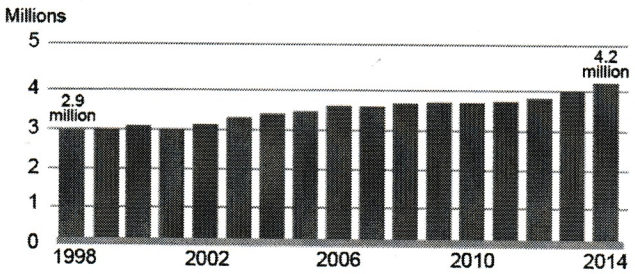
- Digital devices use up vast quantities of precious metals and other resources
- Data centres round the world ("the cloud") use more energy than the whole of the UK uses for heat, light, transport …
- But are there positive effects that outweigh the negative environmental impacts?

Environment management

- Digital control systems allow control of energy use in the home, industry, and transport
  - For example, dishwashers can be run when the wind is powering turbines to provide electricity

Lifestyle and the environment

- In 2014, 14% of 30 million working adults 4.2 million people worked from home
- About half were managers or professional



Task: Lifestyle and the environment

- How is the environment and lifestyle affected by working from home?

Consolidation

What impact do you think the pace of technology has on the environment?

Homework

- Write notes on chapter 45
- Complete textbook exercises on chapter 45